EXHIBIT A

STATEMENT OF WORK

EL SEGUNDO AREA INTELLIGENT TRANSPORTATION SYSTEM PROJECT

(EL SEGUNDO AREA ITS)

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INTRODUCTION

This document includes two sections. Section 1 outlines the major phases and components of the El Segundo Area ITS project (PROJECT), describing Los Angeles County's goals and objectives and operational characteristics of the project (not scope of work for the Consultant) while Section 2 defines the Consultant's Scope of Services of the El Segundo Area ITS Project. Work products described under Section 2 - Statement of Work will be completed and delivered by Iteris, Inc. (CONSULTANT) to the County of Los Angeles, Department of Public Works (DPW), in accordance with the terms of the agreement.

Currently, the primary stakeholders of the Project include the Cities of El Segundo, Lawndale, Hawthorne, Manhattan Beach, and Redondo Beach; The Los Angeles County Metropolitan Transportation Authority, Los Angeles County DPW, The State of California Department of Transportation; and the El Segundo Employers Association.

The PROJECT area is bounded by Interstate 105 (I-105) to the north, Hawthorne Boulevard to the east, Manhattan Beach Boulevard to the south, and Vista del Mar to the west. The arterial routes to be considered within the PROJECT area are Sepulveda Boulevard (State Route 1), Aviation Boulevard, Imperial Highway, El Segundo Boulevard, Rosecrans Avenue, and Manhattan Beach Boulevard.

The following abbreviations are used throughout this document:

- PROJECT — El Segundo Area ITS Project
- DPW — County of Los Angeles, Department of Public Works
- CONSULTANT — Iteris, Inc. Project Team
- ESEA — El Segundo Employers Association
- SBCCOG — South Bay Cities Council of Governments

SECTION 1 - PROJECT PHASES AND COMPONENTS

The PROJECT consists of the following major phases:

Phase 1: Preliminary/Conceptual Design
Phase 2: Detailed Design
Phase 3: System Deployment and Integration
Phase 4: Operations and Maintenance

The PROJECT consists of five major components. The PROJECT components are described below.

1. Advanced Traffic Management System (ATMS)

The DPW administered South Bay Traffic Forum Intelligent Transportation System (ITS) project will develop, deploy, operate, manage, and maintain a complete multijurisdictional ATMS for the El Segundo Area, as well as the entire South Bay region. The deployed ATMS will provide the hardware and software necessary to monitor, control, and coordinate the operation of traffic signals along the major arterial highways in the El Segundo Area, and integrate the ATMS functions and operations with other traffic signal control systems and ITS projects in the South Bay region. The system will be capable of detecting and monitoring signal status, identifying traffic congestion and incidents, and displaying this information through a fully integrated mapping function. The system will also be able to detect equipment malfunctions enabling the operator to initiate appropriate maintenance operation responses and various other responses to traffic events and congestion either manually or automatically using an expert system application.

It is anticipated that the system will provide once-per-second monitoring of traffic signals, interjurisdictional communication with localized control, and levels of security to restrict access to unauthorized users. The system will also employ strategies such as interjurisdictional data sharing; cooperative efforts in timing plan development, a coordinated response to arterial incidents, congestion and special events, and traffic data analysis. Additionally, the system will provide local and regional level access, controls, and interfaces with local agencies' Traffic Control Centers (TCC) and sub regional Transportation Management Centers (TMC) in the South Bay Traffic Forum Area, other County regional traffic forum TMCs, the City of Los Angeles' Automated Traffic System and Control (ATSAC) System, Caltrans District 7 TMC, and the future Los Angeles County TMC.

Through the South Bay ITS Project each municipality will be provided with integrated workstations capable of controlling its jurisdiction's traffic signals, as well as the ability to monitor all signals in the South Bay region from its remote workstation site, or TCC. Provisions will be made to allow an individual city to control other jurisdiction's signals through pre-approved timing plans in the event of major incidents and special events or during non-peak hours and weekends. Typically, a workstation will consist of a computer system located at each jurisdiction's city hall or other location and will be fully capable of satisfying that jurisdiction's traffic management needs. The design, deployment, operation, management and maintenance of these local TCCs will be the responsibility of the DPW-administered South Bay Traffic Forum ITS project.

Another element of the ATMS is the establishment of a comprehensive Vehicle Detection and Traffic Surveillance System to supplement the existing traffic signal detectors and to collect real-time traffic data and information at key intersections or other locations where monitoring of traffic is critical to the movement of vehicles. The amount, type, location, and deployment schedule of system detectors and Closed Circuit Television (CCTV) cameras will be determined by the DPW-administered South Bay Traffic Forum ITS project.

The ATMS, and its related subsystems, will be designed to be capable of expansion to provide the necessary control, map display, and monitoring functionality to serve all routes contemplated for the South Bay Traffic Forum ITS projects, including the El Segundo Area.

The CONSULTANT for this PROJECT will integrate the ATMS deployed by the South Bay Traffic Forum ITS project with the proposed Advance Traveler Information System (ATIS) and Traveler Information Center (TIC) to acquire the traffic information generated by the ATMS. The CONSULTANT will also review the existing and planned ATMS elements by the South Bay Traffic Forum ITS project and augment it with additional field elements and/or expand coverage to other routes as needed for the PROJECT. The additional field elements and traffic signals to be added by the CONSULTANT as part of this project will be integrated into each City's TCC and, once deployed, will be operated and maintained by the local jurisdictions as provided in the South Bay Forum ITS project. The traffic information (data and video), which will be generated by the ATMS, includes, but may not be limited to, vehicle counts, speed, lane occupancy, traffic incidents, congestion points, and construction activities. It is envisioned that this data, to the extent that it is available, will be accessible to the private sector partners for dissemination to the traveling public, public sector partners (i.e., DPW, etc.), and private interest groups.

The public sector agencies will only be responsible for providing baseline traffic information (data and video), which is gathered as part of the DPW-administered South Bay Traffic Forum ITS project. This data, as well as the data generated from the County's other regional traffic forum ITS projects (Gateway Cities and San Gabriel Valley), will be accessible from the South Bay Corridor Server to be located in the South Bay sub regional TMC. The CONSULTANT for the PROJECT will also be required to confer and coordinate with the Consultants for Parts II and III of the South Bay Traffic Forum ITS project and to use the recommendations from the Part III Consultant regarding the deployment of the ATMS elements and any necessary alternations to the work space (potentially local TCCs) to provide the functionality needed for this PROJECT.

2. Advanced Traveler Information System (ATIS)

This component consists of the development, design, selection, deployment, operation, management, and maintenance of a complete multijurisdictional ATIS. The system will include the hardware and software necessary to collect, process, validate, and disseminate both pre-trip and en-route real-time traffic and roadway information to public agencies, private stakeholders, and the public.

The ATIS system will be operated from the PROJECT's proposed TIC and will be integrated with the ATMS to be deployed by the South Bay Traffic Forum ITS project and additional elements of the ATMS that might be deployed by this PROJECT to retrieve traffic and other data, process and create messages, and disseminate messages through devices such as: Changeable Message Sign (CMS), information kiosks, the Internet, corporate Intranet, in-vehicle navigation devices, pagers, cellular telephones, personal digital assistants, broadcast media markets, cable television, and other wireless technologies.

Through the DPW administered South Bay Traffic Forum ITS project, the public sector partners will be responsible for disseminating baseline traffic information messages to the public free of charge through CMSs. These devices will be located within the PROJECT area in the public right-of-way at critical travel decision points and will alert motorists of unusual traffic conditions such as congestion, incidents, special events, detours, and route closures. They may also be used to actively divert traffic in coordination with a predetermined or traffic responsive traffic management plan generated by the ATMS to provide motorists with route guidance information. The design, development, selection,

deployment, operation, management, and maintenance of the CMSs will be based on the work produced by the Consultants for Parts II and III of the South Bay Traffic Forum ITS project. Should additional recommended CMS locations be identified through the PROJECT, three alternatives will be explored for the design, deployment, operation, and maintenance of the CMS. During the PROJECT concept design phase the deployment approach will be reviewed to define the most appropriate method to follow. These three alternatives include:

1. PROJECT will design, deploy, operate, and maintain the CMS;
2. PROJECT will only design and deploy the CMS and the local agency will be responsible for the operation and maintenance.
3. PROJECT would identify CMS locations, Part III of the South Bay Project will design and deploy, and the local agency will be responsible for the operation and maintenance.

With each of these alternatives memorandums of understanding/operations would need to be developed between the CONSULTANT and the individual agencies relative to not only the placement of infrastructure within their right-of-way but also for the maintenance (if desired) for those devices.

To develop a cohesive operations approach, the CONSULTANT will work closely with the Consultants for Parts II and III to develop an operational strategy which allows for the control by both the Public Agency as well as the TIC. It is envisioned that this may be accomplished through the issuing of priority control strategies, whereby during specific activity levels the TIC will have priority to control and operate the CMS. It is envisioned that the control and operation of CMS deployed by the PROJECT and those deployed by the South Bay Traffic Forum ITS Project within the PROJECT area will be integrated providing a more robust en-route traveler information package.

The private sector partners will consider disseminating baseline traffic information messages to the public through various means such as Highway Advisory Telephone (HAT) and the Internet. These devices shall alert motorists of unusual traffic conditions such as congestion, incidents, special events, detours, and route closures. The CONSULTANT for the PROJECT will be required to work with the Consultants for Parts II and III of the South Bay Traffic Forum ITS project to coordinate the type of messages to be broadcast on these devices with the messages displayed on CMSs. The design of the HAT system should consider the use of "511" as the traffic information telephone number.

The private sector partners will also consider disseminating personalized traveler and transit information through all other devices with the intention of generating revenue. They should add value to the baseline data generated by the ATMS deployed by the South Bay Traffic Forum ITS project; adapt the information to forms suitable for individual travelers, commercial vehicle operators, and transit riders; integrate the traveler information with other offerings such as travel related yellow pages, news, or other services and products; and personalize the traveler information for individual subscribers. Value-added information that the private sector contributes must be provided at no cost to all of the participating public sector partners.

The personalized, value-added information available to the traveler can be divided into two main categories, pre-trip and en route. Pre-trip information is intended to be provided through devices such as: the Internet, corporate Intranet; cellular telephones, pagers, personal digital assistants, cable television, etc. The en route information may be provided through in-vehicle navigation devices, cellular telephones, pagers, personal digital assistants, broadcast media markets, and other wireless technologies.

The traffic data to be accessed, processed, and disseminated by the ATIS includes, but is not limited to, the following:

- Traffic volumes;
- Level of service/congestion;
- Traffic speeds;
- Travel times;
- Lane closures;
- Incident locations; and
- CCTV images.

The ATIS will be designed based on the preferences of end users including, but not limited to, typical travelers, employees of businesses located in the PROJECT area, commercial vehicle operators, and transit riders. The CONSULTANT for the PROJECT will obtain end-user input throughout design, development, and testing, and provide for user prototyping to allow the design to be more interactive and functional. The CONSULTANT will recommend the location and design of the proposed ATIS and field devices; prepare the PS&E packages; and operate, manage, and maintain the ATIS.

3. Traveler Information Center (TIC)

The TIC is currently proposed to be located within the PROJECT area and will house the central hardware and software for the ATIS elements, a server to store all collected baseline traffic data and generated traveler information, and operator workstations. This facility will be the central clearinghouse for the collection and storage of traffic and transit-related information that is gathered through the ATMS and disseminated to other facilities through the ATIS. The operation and management of the ATIS and their accompanying field elements will be conducted at the TIC. The TIC will be capable of collecting, fusing, packaging, and disseminating traffic and transit information.

The TIC will provide local level access and connections to the South Bay Corridor Server to be deployed as part of the South Bay Traffic Forum ITS project. The South Bay Corridor Server will provide regional level access and connections to other sub regional traffic forum TMCs, Caltrans District 7 TMC, LADOT's ATSAC, and the future Los Angeles County TMC. The TIC could consist of multiple workstations and a large area screen capable of displaying real-time system maps and information, as well as video and data from other potential or future ITS elements. The CONSULTANT will recommend the location, ultimate design, and configuration of this proposed facility; prepare the PS&E packages; oversee the installation of the TIC; and operate, manage, and maintain the TIC.

4. Integration System

This component will integrate PROJECT components described above so that an open system architecture is maintained and all components are integrated in a seamless environment with a common interface. The CONSULTANT will develop the ATIS user interface requirements, generate top-level data flow diagrams for each Graphic User Interface (GUI), and review the interface prototype with the users. A standardized and user-friendly interface will also be developed by the CONSULTANT as part of this component to facilitate system expansion, operation, maintenance, and training. The CONSULTANT will provide developer tools and detailed instructions to modify the user interface to reflect future expansion and changes in the system (e.g., installation of new traffic signals, deployment of additional cameras, desired changes to database layouts, etc.).

5. Communications System

This component includes the design of a communications system capable of supporting the recommended multijurisdictional ATIS and ATMS design. The installation of a communications network is essential to support the data collection, fusion, packaging, and dissemination capabilities of the ATIS, and the information exchange with other jurisdictions, stakeholders, and systems such as the South Bay sub regional and Los Angeles County regional arterial traffic control systems.

The CONSULTANT will be responsible for defining this communications network which will include links between the field infrastructure units, and ATIS elements, and the data server located at the TIC. The network will provide communication links between the TIC server and the South Bay Corridor Server. The CONSULTANT will recommend the location and design of these communication links; prepare the PS&E packages; oversee the installation of the communication links; and operate, manage, and maintain this communications network. For the ATMS which will be installed under the PROJECT, the CONSULTANT will be responsible for designing and installing the communications between the additional field elements and each agency's TCC. The public agencies will be responsible for operating, managing, and maintaining the communication links to their TCC's.

Since the communication system will drive the capability of all system components, the CONSULTANT will consider both present and future ITS elements in the design. Additional primary considerations will be expandability to include other potential stakeholders and users and the cost effectiveness of the system. Possible communications medium technology may include, but not be limited to, twisted pair cable, leased telephone lines, fiber optic cable, spread spectrum radio, wireless modems, very small aperture terminals, or a combination of the above. In designing the system, the CONSULTANT will take advantage of opportunities to reuse existing or planned communication facilities.

Early Deployment Projects

Based on the elements contained within the above PROJECT components, there may be the opportunity to initiate deployment of specific ATIS technologies as demonstration projects within this phase. The CONSULTANT will propose specific fast track and implementable ATIS products and services for analysis, design, and evaluation. It is envisioned that the proposed demonstration projects will become part of the overall PROJECT deployment.

SPECIAL PROVISIONS

Any recommendations made by the CONSULTANT for this PROJECT will be for the implementation of "open systems" and will be made after careful review of potentially suitable systems. This includes completed systems or systems currently under development in the South Bay Traffic Forum ITS Projects or other traffic forums.

The CONSULTANT will perform the tasks and subtasks and provide deliverables as described herein.

For each deliverable outlined in this Agreement, the CONSULTANT will submit to DPW draft versions for review and comment. If the first draft is acceptable to the DPW, DPW will distribute copies to stakeholders for review and comment prior to being returned to CONSULTANT for preparation of final documents. If the first draft submitted to DPW is not acceptable to the DPW, it will be returned to CONSULTANT until it is in a form acceptable for distribution to stakeholders.

The CONSULTANT is required to address stakeholder comments. Any stakeholder comment that is not incorporated into a report shall be discussed, either verbally or in writing, with the DPW and the writer of the comment.

A draft deliverable shall be considered accepted by DPW and CONSULTANT may invoice DPW for the cost of the deliverable when DPW determines, in its sole discretion, that the draft deliverable is acceptable for distribution to the stakeholders. A final deliverable shall be deemed accepted by the DPW and CONSULTANT may invoice the DPW for the cost of the deliverable upon receipt by CONSULTANT of a written notification of acceptance from the DPW.

The CONSULTANT shall use the standard DPW software set forth below when preparing deliverables. The CONSULTANT shall provide deliverables in a file format (on diskette[s]) or via e-mail importable to the standard DPW software. Current DPW standards software is as follows:

- Microsoft Word or Corel Word Perfect - Word Processing;
- Microsoft Excel – Spreadsheet; and
- Microsoft Project.

Exhibit B (Payment Schedule) of this Agreement provides the payment schedule for each deliverable included in this Statement of Work. Payment shall be made in accordance with the Agreement.

Section 2- Statement of Work

PHASE 1 PRELIMINARY AND CONCEPTUAL DESIGN MASTER PLAN SCOPE OF SERVICES

The CONSULTANT shall prepare the Preliminary and Conceptual Design report and concept design plans for each applicable PROJECT component. This task will be accomplished by understanding the needs of and discussing travel issues with the PROJECT stakeholders, and by preparing detailed and comprehensive user and system functional requirements documents. Based upon these documents, the CONSULTANT shall perform an alternative analysis to select the best alternative to satisfy the identified user and functional needs and define the "concept of operations" for the PROJECT.

Phase 1 will also include an early deployment task whereby specific ATIS technologies and additional ATMS technologies for data collection will be deployed and evaluated on an immediate basis. This task will allow the CONSULTANT to test specific technologies and determine the benefit, potential revenue generation capability, and sustainability of the selected components to the PROJECT stakeholders.

The recommendations from the alternative analysis will culminate in a Conceptual Design Master Plan document for each PROJECT component that will identify:

- Improvement locations;
- The type of technology to be used;
- The conceptual design and specifications;
- A detailed description of the tasks involved with the implementation and installation of each PROJECT component;
- Preliminary Cost estimates; and
- Operations and maintenance requirements.

The Master Plan will serve as the foundation for the Detailed Design Phase (Phase No. 2). It will also be used as a starting point for building consensus on a variety of institutional issues including cost sharing and operation and maintenance of the proposed improvements once they are in place.

The CONSULTANT shall complete the draft or final version (if a draft version is not to be completed for a specific task) of all deliverables for the tasks in this phase after receipt of the Notice to Proceed for this PROJECT from DPW.

Task 1: Project Management

The CONSULTANT shall provide a Project Manager who will act as the principal consultant contact for the DPW and other involved agencies. The designated Project Manager will be responsible for the completion of activities associated with the performance of this PROJECT, including the requirements and alternative analyses, system recommendation, conceptual design, and operations and maintenance and strategic plans. All required products must be delivered to DPW in a timely manner to the satisfaction of the DPW. Additional responsibilities include management of project planning activities and the tracking of costs and resources associated with each aspect of the PROJECT.

The Project Manager shall oversee and participate in the day-to-day activities of the PROJECT and shall, therefore, have no concurrent assignments that would interfere with the successful and timely completion of the work related to the PROJECT.

Task 1.1: Project Coordination

The CONSULTANT shall coordinate technical design activities with the involved public and private agencies for each system component of this PROJECT. This will include, but not be limited to, the following list. It should be noted that this task would be billed on a "cost-plus" basis. For the purposes of developing a cost estimate, the number of meetings for each coordination effort area has been estimated.

- Coordination with other organizations working on overlapping elements of the PROJECT such as DPW, who is coordinating all traffic signal synchronization projects within the South Bay Traffic Forum; the Meyer, Mohaddes Associates Team, the Consultant for Part II of the South Bay Traffic Forum ITS project; and the PB Farradyne Team, the Consultant for Part III of the South Bay Traffic Forum ITS project;
- Coordination with stakeholders for information gathering on the design and construction of any similar project with the PROJECT;
- Coordination with other regional and subregional projects which may impact the PROJECT such as the San Gabriel Valley SOM Pilot Project, Los Angeles/Ventura regional ATIS project, and the Southern California Priority Corridor Project and its related subprojects; and
- Coordination with the other activities of regional ITS committees which may affect the PROJECT such as the Los Angeles/Ventura ITS Coordinating Committee and the Southern California ITS Priority Corridor Steering Committee.

TABLE 1
PROPOSED PHASE 1 MEETINGS

Meeting	Frequency	Approximate No. of Meetings
1. SBCCOG Transportation Oversight Committee	Bi-Monthly	6
2. SBCCOG Infrastructure Working Group	Quarterly	4
3. El Segundo Employers Association (ESEA)	Quarterly	4
4. DPW staff meeting	Monthly	12
5. Stakeholders meeting including pre-design meetings	Two meetings with each stakeholder during Phase 1	18
6. Other meetings including meeting with South Bay ITS Project Part III Consultant	As needed during Phase 1	4
Total Meetings		**48**

Task 1.2: Attend Project Meetings/Make Project Presentations

The CONSULTANT shall attend PROJECT meetings with DPW and stakeholders as deemed necessary by the DPW to accomplish the tasks and subtasks of this phase. The CONSULTANT will also be required to make technical presentations, including the use of presentation materials and the distribution of handouts, as needed at South Bay Forum meetings, SBCCOG meetings, DPW staff meetings, and any other meetings as requested by the DPW or area stakeholders.

The CONSULTANT shall obtain prior approval from the DPW on any presentation and handout materials to be distributed at any technical presentation of the PROJECT. The DPW shall be provided with a copy of the distributed materials.

The CONSULTANT shall prepare meeting notes for any PROJECT meetings and distribute a copy to meeting participants. Meeting notes shall summarize each discussion and action item.

Deliverables:

1.2.1: Up to 14 presentations of materials with handouts
1.2.2: Up to 34 meeting notes

Task 1.3: Create and Update Web Page

The CONSULTANT shall provide and update a web site for the PROJECT, to be hosted by DPW. As a first task, the CONSULTANT shall submit to DPW for review and approval the screen layout of the web site and all sub-pages. This site must comply with DPW web development standards. The initial submittal and any subsequent updates shall occur via the CONSULTANTS' web site. Once created, a link will be sent to DPW for review and approval. The CONSULTANT will also be required to update information on the web site. Once an update is approved, the CONSULTANT shall submit the changes to DPW via email or through File Transfer Protocol (FTP) and DPW staff will complete the update of the web site.

The primary web page shall contain a brief description of the PROJECT. The description shall contain, at a minimum, information on the PROJECT area, involved agencies, PROJECT objectives, and the agency, stakeholders and CONSULTANT contact persons for the PROJECT. The web page shall also contain sub-pages with additional PROJECT information as follows:

PROJECT Status Sub-Page

This page shall contain a summary of the status of the PROJECT. This information shall be updated monthly, at a minimum, including finalized PROJECT's monthly status reports. Information on the date, time, and location of upcoming project related meetings within the next month shall be included.

Documents Sub-Page

This page shall contain downloadable, electronic files of all draft and final deliverables.

The CONSULTANT shall be responsible for reviewing/updating the web site monthly, at a minimum. Prior to each update of the web page or sub-pages, the CONSULTANT shall obtain approval from the DPW for the information to be posted.

Other Relevant Web Sites

This page shall contain a listing of other sites with direct relevance to the PROJECT. This list will include links to specific project websites within the greater Los Angeles area (e.g., LA/Ventura ATIS, Priority Corridor Showcase Project, TravelTip, etc.) as well links to PROJECT stakeholders and other sites deemed appropriate by DPW which are relevant to either the PROJECT or the industry in general (i.e., ITS America, ITE subcommittees, etc.).

Deliverables:

1.3.1: Screen layout of the web page and sub-pages
1.3.2: Web site updating

Task 1.4: Prepare PROJECT Reports

The CONSULTANT shall prepare and submit written monthly progress reports and a final report to the DPW detailing the status of work being performed by the CONSULTANT. These reports shall be in a form acceptable to the MTA as part of its Quarterly Narrative Report. The reports shall include, but not be limited to:

- A narrative of the tasks accomplished in that month;
- A review of any incomplete tasks and the reasons why they were not completed;
- An outline of the tasks anticipated to be accomplished in the next month;
- A summary of problems which occurred during the month;
- Any anticipated problems;
- An updated PROJECT schedule;
- A list of outstanding issues and deliverables;
- The current status of those issues and deliverables;
- An invoice as required by this Agreement; and
- A summary of the percent completion for each task of the PROJECT.

The CONSULTANT shall also prepare claims, invoices, billings, and other financial information for review and approval by the DPW, as required by the Agreement.

Deliverables:

1.4.1: Monthly progress reports and final report
1.4.2: Financial reports, billings, and invoices

Task 2: Early Deployment Project(s)

As part of the PROJECT'S overall conceptual design phase, the CONSULTANT will proceed with the early deployment of prototype ATIS products and user services. These prototype ATIS projects/services will be evaluated for their market acceptance and ability to generate revenue. Prior to the early deployment of any prototype project/service, a detailed scope of work will be submitted to the PROJECT stakeholder for their approval. The scope of work will include:

- An identification of the potential users and their requirements;
- The traffic data needed to provide the particular product/service, and how that data will be obtained;
- An analysis of how the product/service enhances transit service within the PROJECT area;

- The cost estimates to design, develop, and deploy;
- Fee schedule (illustrating the design and implementation cost);
- A description of the deployment area, and a breakdown by jurisdiction, if applicable;
- An estimate of the operations and maintenance costs of the product or service, including the public agency operating and maintenance and management costs, if applicable;
- Deployment schedule, and the proposed period of evaluation;
- Evaluation methods and parameters for measuring effectiveness; and
- The anticipated benefits, users, revenue, etc to be generated by the service.

Upon deploying a prototype ATIS product/service, quarterly status reports will be submitted to the PROJECT stakeholders throughout the evaluation period. At the conclusion of the evaluation period, a business plan will be prepared which evaluates the prototype ATIS product/service's potential for generating revenue, provides a detailed pricing and marketing plan, and outlines the plan for operating, managing, and maintaining the product/service through the PROJECT'S duration. The business plans produced for these Early Deployment projects will be the basis for the overall conceptual design phase of the PROJECT. It is anticipated these projects will be developed during, and possibly following, the completion of the PROJECT'S Conceptual Design. Therefore, if the proposed Early Deployment Project is completed during the PROJECT'S Conceptual Design, is determined to be successful, proven to be accepted by the market and have the potential to generate revenue; it will be proposed for expansion and deployment throughout the entire PROJECT area. In this instance, it will be incorporated into the Final Conceptual Design Report for the PROJECT and be implemented with the full implementation of the PROJECT. The findings and lessons learned from the business plans for these projects will be incorporated into the Tasks 7.1.1, System Recommendation, 7.2.1, Operation, Maintenance and Management Plan and 7.3.1, Business Plan Reports for the overall PROJECT.

If the Early Deployment Project is determined to be successful and is completed after Task 7, Conceptual Design Report is completed, then the Tasks 7.1.2, System Recommendation and 7.2.1, Operation, Maintenance and Management Reports will be updated with the results of these reports and incorporated into these Final PROJECT documents.

This process will allow the CONSULTANT to test specific technologies within a much smaller and somewhat controlled environment and allow both the CONSULTANT and DPW to evaluate its effectiveness within the PROJECT area. The early deployment projects will not be considered standalone deployments. Rather, they will converge with the overall PROJECT forming the ultimate ATIS solution for the entire PROJECT area.

The CONSULTANT shall commence the development of each early deployment project upon its approval by DPW and issuance of its associated Task Order.

The CONSULTANT, upon receipt of each early deployment task order, will proceed with design, implementation and evaluation of the project. The design shall be based on local and state standards and detailed enough for development and implementation. Each prototype ATIS product/service should be designed based on actual users preferences identified during Task 2. For each prototype project, evaluation criteria will be developed and discussed with DPW staff. The evaluation of each early deployment project shall show its expected benefit through a cost/benefit analysis of the project. The evaluation shall also present how and when the project will fit into the entire system. After each prototype project has been evaluated, the results will be presented to DPW to decide if it is desirable to implement the project on a larger scale.

Deliverables:

2.1.1 Early Deployment Project(s) Scope of Work
2.1.2 Early Deployment Project(s) Quarterly Status Reports
2.1.3 Draft Early Deployment Project(s) Evaluation Report
2.1.4 Final Early Deployment Project(s) Evaluation Report
2.1.5 Draft Early Deployment Project(s) Business Plan
2.1.6 Final Early Deployment Project(s) Business Plan

Task 3: Stakeholders and Operational Objectives

The CONSULTANT shall identify primary agency stakeholders and potential participating stakeholders and users and their operational objectives relative to the five major system components of the PROJECT and future ITS elements to be integrated into the system. This will be reviewed with DPW staff for approval.

The CONSULTANT shall schedule and conduct PROJECT pre-design meetings with each of the primary agency stakeholders and potential participating stakeholders, including the El Segundo Employers Association (ESEA) for the purpose of, but not limited to:

1. Identifying primary agency stakeholders for the operation and management of the system and other potential participating stakeholders and users that could benefit from the PROJECT;
2. Identifying agency and stakeholder's operational objectives and user and system functional performance requirements;
3. Obtaining design standards;
4. Obtaining pertinent plans and status of any project which may affect this PROJECT; and
5. Preparing individualized city reports prior to the pre-design meetings. Each report shall be tailored to the individual city and contain information on the city's existing traffic signal infrastructure and traffic control system and a summary of the latest infrastructure improvements in the city, including the ITS improvements proposed to be deployed by the South Bay ITS Project. The reports will identify what CONSULTANT thinks each city has and what CONSULTANT believes can be done.

Upon completion of the pre-design meetings, the CONSULTANT will prepare the stakeholders' Operational Objectives Report. This report shall contain a summary of the traffic signal infrastructure, any traffic control system deficiencies, existing or planned traveler information infrastructure, desired traveler information infrastructure, a description of potential upgrades to the city's infrastructure and system, and transit availability as identified by local agencies, transit agencies, and Caltrans.

The Report shall also discuss the relative merits and possible benefits and costs associated with those potential upgrades, including impacts on staffing and operations, management and maintenance costs. This report shall be detailed enough to enable the CONSULTANT to develop a complete and comprehensive list of user and functional objectives for this PROJECT.

It is envisioned that up to six (6) Individual City Reports will be developed. The CONSULTANT shall identify the proposed agencies, and allow DPW to approve the list, prior to Individual City Report development.

Deliverables:

3.1.1 Draft Stakeholders' Operational Objectives Report
3.1.2 Final Stakeholders' Operational Objectives Report
3.1.3 Six (6) Individual City Reports

Task 4: Requirements Analysis

Task 4.1: ATMS Requirements

The DPW-administered South Bay Traffic Forum ITS project will develop, deploy, operate, manage, and maintain a complete multijurisdictional ATMS for the PROJECT area, as well as the entire South Bay region. The CONSULTANT will utilize analyses completed by the two consultants for the South Bay Traffic Forum ITS project (Part II and Part III of the South Bay Signal Synchronization and Bus Speed Improvements Plan) as the starting point for this analysis and augment as required for the PROJECT.

User Requirements

The CONSULTANT shall update the User Requirements documents previously prepared by the consultants for the South Bay Traffic Forum ITS project and define the user operational and functional requirements for any additional ATMS elements that might be required as part of the PROJECT. These documents will identify the system users and the desired system operations and functions. The document shall be complete, comprehensive, and provide enough information needed to proceed to the next task (System Functional Requirements). This document shall include, but not be limited to, the following information:

- Data collection;
- Future ITS elements;
- Information exchange;
- Level of control;
- Modes of operation;
- Security/access;
- Inter-jurisdictional requirements;
- O&M requirements;
- Staffing and training requirements;
- Cost requirements; and
- Public outreach.

The CONSULTANT will use the user requirements developed for Part III as a starting point and modify the requirements using follow-up visits to individual cities to discuss issues and concerns. The CONSULTANT shall perform field reviews, as needed, of existing traffic control infrastructure to verify existing conditions.

The CONSULTANT shall utilize any pertinent information obtained from the South Bay Traffic Forum ITS projects (Part II and Part III of the South Bay Signal Synchronization and Bus Speed Improvements Plan) for this PROJECT in order to avoid duplication of effort and unnecessary additional work and expense.

Functional Requirements

Based on the user requirements, the CONSULTANT shall update the System Functional Requirements document previously prepared for the South Bay Traffic Forum ITS project. This document shall identify the system functional requirements as it relates to the PROJECT user needs.

These requirements shall also contain recommendations on upgrades to the existing vehicle detection systems including the installation of new system detectors as necessary for full implementation of the ATMS and integrated systems. This document shall be complete, comprehensive, and provide enough information to proceed to the next tasks (Concept of Operations/Area Architecture, Alternative Analysis and Conceptual Design). The system functional requirements shall address, but not be limited to, the following requirements:

- Needs/requirements of existing systems;
- System performance;
- Equipment and technology;
- Availability of technology;
- Interoperability;
- Expandability to provide additional ITS elements;
- Implementation costs;
- Operations;
- Maintenance;
- System Interface;
- Existing infrastructure;
- Reliability;
- National and International Standards, such as National Transportation Communications for ITS Protocol (NTCIP) as required; and
- Scalability.

The CONSULTANT shall utilize any pertinent information obtained from the South Bay Traffic Forum ITS project for this PROJECT in order to avoid duplication of effort and unnecessary additional work and expense.

Deliverables:

4.1.1: Draft ATMS User and Functional Requirements Report
4.1.2: Final ATMS User and Functional Requirements Report

Task 4.2: Advanced Traveler Information System (ATIS) Requirements

The CONSULTANT will develop the user needs and system functional requirements of the ATIS. To the extent possible, the CONSULTANT shall utilize any pertinent information obtained from the South Bay Traffic Forum ITS Project (Part II and Part III of the South Bay Signal Synchronization and Bus Speed Improvements Plan).

User Requirements

The CONSULTANT shall develop user requirements, which define the ATIS user operational and functional requirements. This task will identify the system users and the desired system operation and function for the proposed ATIS. This task shall be comprehensive, and provide enough information to proceed to the next task (Functional Requirements).

These requirements shall include, but not be limited to, the following:

- Operational requirements:
  - Data;
  - Video;
- Information exchange;
- Level of control;
- Modes of operation;
- Security;
- Inter-jurisdictional requirements;
- Maintenance requirements;
- Staffing and training requirements;
- Cost requirements;
- Public relations/political considerations, and
- Accessibility.

Functional Requirements

Based on the user requirements, the CONSULTANT shall define the system functional requirements for the ATIS as they relate to the identified user needs of this PROJECT component. This task shall be comprehensive, and provide enough information to proceed to the next task (Concept of Operation/Area Architecture). It shall include, but not be limited to, the following requirements:

- System performance;
- Equipment and technology;
- Availability of technology;
- Adaptability;
- Interoperability;
- Implementation costs;
- Operation considerations;
- Maintenance impacts;
- System interface;
- Existing infrastructure;
- Reliability;
- Flexibility; and
- Extensibility.

The CONSULTANT shall utilize any pertinent information obtained from the South Bay Traffic Forum ITS project for this PROJECT in order to avoid duplication of effort and unnecessary additional work and expense.

Deliverables:

4.2.1: Draft ATIS Requirements Report
4.2.2: Final ATIS Requirements Report

Task 4.3: Traveler Information Center (TIC) Requirements

In this task, the CONSULTANT will develop the user needs and system functional requirements of the TIC. Based on this information, the CONSULTANT will evaluate various potential locations and

recommend the location, preliminary design, and configuration of this proposed facility.

User Requirements

The CONSULTANT shall develop user requirements, which define the user operational and functional requirements. This task will identify the system users and the desired system operation and function for the proposed TIC hardware, software and physical layout. This task shall be complete and provide sufficient information needed to proceed to the next task (Functional Requirements). It shall include, but not be limited to, the operational and functional needs associated with the following:

- TIC operations;
- Multi-modal information access (data sharing/information exchange);
- Media access;
- Hours of operation;
- O&M requirements;
- Public relations issues;
- Data sharing and information exchange;
- Inter-jurisdictional coordination;
- ITS field elements associated with this PROJECT; and
- Interfacing with other jurisdictions and TMCs.

Functional Requirements

Based on the user requirements, the CONSULTANT shall develop functional requirements that define the system operational and functional requirements. This task will identify the required system functions and operations for the proposed TIC hardware, software, and physical layout. This task shall also identify the system functional requirements for any component not identified under any other task but is required to provide a fully functional TIC. This task shall be comprehensive and provide enough information to proceed to the next task (Concept of Operations / Area Architecture). It shall include, but not be limited to, the following requirements:

- Function;
- Functional adjacency;
- Staffing and training;
- Computer system;
- System performance;
- Equipment and technology;
- Availability of technology;
- Interoperability;
- Implementation costs;
- Operational considerations;
- Computer system maintenance;
- System Interface(s); and
- Reliability.

The following requirements for the TIC will be addressed:

- Construction planning or phasing;
- Building maintenance;
- Future expansion; and
- Power and heating, ventilation, and air conditioning (HVAC).

Deliverables:

4.3.1: Draft TIC Facility and Computer System Requirements Report
4.3.2: Final TIC Facility and Computer System Requirements Report

Task 4.4: Integration System Requirements

In this task, the CONSULTANT will develop the user needs and system functional requirements relative to the integration of systems to be deployed as part of this PROJECT. The CONSULTANT will utilize analyses completed by the two consultants for the South Bay Traffic Forum ITS project (Part II and Part III of the South Bay Signal Synchronization and Bus Speed Improvements Plan) as the starting point for this analysis and augment as required for the PROJECT.

User Requirements

The CONSULTANT shall prepare a User Requirements document that defines the transportation system integration user operational and functional requirements. This document will identify the system users and the desired system operation and function with respect to system integration. This document shall be complete, comprehensive, and provide enough information needed to proceed to the next task (System Functional Requirements). This document shall include, but not be limited to, the following:

- Operational requirements:
  - Data collection;
  - Future ITS elements;
  - Information exchange;
  - Level of control; and
  - Modes of operation.
- Security;
- Functional requirements;
- Inter-jurisdictional requirements;
- Maintenance requirements;
- Staffing and training requirements;
- Cost requirements; and
- Public relations/political considerations.

The CONSULTANT will use the findings of previous tasks as a starting point. The CONSULTANT shall perform field reviews, as needed, of existing traffic control infrastructure to verify existing conditions.

The CONSULTANT shall utilize any pertinent information obtained from the South Bay Traffic Forum ITS project for this PROJECT in order to avoid duplication of effort and unnecessary additional work and expense.

Functional Requirements

The CONSULTANT shall prepare an Integration System Functional Requirements document by applying the integration system user requirements to meet the needs of this PROJECT. This document shall identify the integration system functional requirements as they relate to the system integration user needs. This document shall be complete, comprehensive, and provide enough information to

proceed to the next tasks (Concept of Operations/Area Architecture, Alternative Analysis and Conceptual Design) and shall include, but not be limited to, the following requirements:

- System performance;
- Interface requirements between system components;
- Interface protocol standards;
- Interface requirements between systems within and outside the forum area;
- Equipment and technology;
- Availability of technology;
- Interoperability;
- Expandability;
- Implementation costs;
- Operation;
- Maintenance;
- Existing infrastructure; and
- Reliability.

The CONSULTANT shall utilize any pertinent information obtained from the South Bay Traffic Forum ITS project for this PROJECT in order to avoid duplication of effort and unnecessary additional work and expense.

Deliverables:

4.4.1: Draft Integration System User and Functional Requirements Report
4.4.2: Final Integration System User and Functional Requirements Report

Task 4.5: Communications Requirements

The CONSULTANT shall obtain the information needed to identify the communications system user and functional requirements. This may require follow-up visits to individual cities and agencies to discuss issues and concerns. This will also require field reviews to verify existing communications infrastructure. The CONSULTANT will utilize analyses completed by the two consultants for the South Bay Traffic Forum ITS project (Part II and Part III of the South Bay Signal Synchronization and Bus Speed Improvements Plan) as the starting point for this analysis and augment as required for the PROJECT.

Based on the input received from the agencies, prior reports, and requirements gathered from previous tasks and field reviews, the CONSULTANT shall prepare a Communications System User and Functional Requirements Report. This document shall identify the needs and concerns of the agency stakeholders with respect to the communications infrastructure. This report shall also document the agencies' communications requirements based on the transportation system design. This document shall include, but not be limited to, data communications requirements for any recommended system and component included in this system such as the following:

- City work stations/control sites;
- Future ITS field elements, such as CCTV, HAR, and CMS;
- Integration system requirements;
- Non transportation-related issues;
- Public relations issues;
- O&M issues;
- Expandability;

- Bandwidth requirement;
- Reliability;
- Redundancy;
- Performance requirements;
- Communications system access points; and
- Potential bottlenecks and weak links.

The CONSULTANT shall utilize any pertinent information obtained from the South Bay Traffic Forum ITS project for this PROJECT in order to avoid duplication of effort and unnecessary additional work and expense.

Deliverables:

4.5.1: Draft Communications User and Functional Requirements Report
4.5.2: Final Communications User and Functional Requirements Report

Task 5: Concept of Operations/Area Architecture

The Concept of Operations starts taking the "what is wanted" of the requirements and start translating them into the "how it will be accomplished". One of the elements of the conceptual design will be an area (or system) architecture. As a by-product of the concept of operations, the area architecture helps identify the functional relationship between the component elements of the system, whether they are performed by a piece of hardware or software, and helps identify the various interfaces between these elements.

Four major steps comprise the development of the Concept of Operations. It begins with the identification of project stakeholders and development of an institutional framework, which was completed as part of the previous tasks. The second step is to assess existing resources and users needs and objectives to develop a thorough understanding of how the users want the system (including demonstration projects and any other proposed ATIS/ATMS elements) to operate and function. Using the results gathered as the foundation, the next step is to develop "high level" operational and functional requirements, which would meet the users' objectives. Finally, these requirements will be used to derive the ATMS and ATIS high level system requirements. From these requirements, the CONSULTANT will develop the Concept of Operations, which articulates the functional requirements for later phases of the project.

Task 5.1: Prepare Concept of Operations/Area Architecture

ATMS

The CONSULTANT will start with information prepared as part of the South Bay Traffic Forum Intelligent Transportation System (ITS) project, and augment as necessary. The Concept of Operations/Area Architecture definition of the ATMS shall include, but not be limited to the following:

- Development of a system architecture;
- Definition of the interface requirements;
- Definition of the overall functionality of the systems; and
- Discussion of necessary upgrades to existing vehicle detection system and the installation of new system detection, to the extent necessary to augment the operational ATMS.

Communications

The Concept of Operations/Area Architecture definition of the communications system shall include, but not be limited to, the following:

- Development of a system architecture;
- Definition of interface requirements; and
- Definition of the overall functionality of the system.

ATIS

The Concept of Operations/Area Architecture definition of the ATIS shall include, but not be limited to, the following:

- Development of a system architecture;
- Definition of interface requirements;
- Definition of the overall functionality of the system; and
- Discussion of the technology components and the installation of the traveler information technology necessary to provide a fully operational ATIS.

TIC

The Concept of Operations/Area Architecture definition of the TIC shall include, but not be limited to, the following:

- Development of a system architecture;
- Definition of interface requirements; and
- Definition of the overall functionality of the system.

Integrated Systems

The Concept of Operations/Area Architecture definition of the transportation integration system shall include, but not be limited to, the following:

- Development of a system architecture;
- Definition of the interface requirements; and
- Definition of the overall functionality of the system.

Concept of Operations

Upon completion of the area architecture and interface requirements for the ATMS, Communications, ATIS, TIC, and Integrated System project components, the CONSULTANT shall develop the Concept of Operations and Area Architecture Definition Report. Within this report, the complete system components will be described, including but not limited to the following elements:

- Overall area architecture, illustrating all sub components;
- Development of system requirements;
- Identification of system functionality;
- Definition of interface requirements within the specific subcomponents, and between subcomponents; and

- Definition of specific technology tools within each component and the advantages/disadvantages associated with each deployment.

In addition, the Concept of Operations will provide a high level overview of how the system will be operated, and will identify the preliminary, proposed level of staffing and resources needed to operate, manage and maintain the PROJECT as conceived. It will also include a discussion of how each PROJECT stakeholder will operate the PROJECT's components and provide typical operating scenarios outlining the daily and weekly resource needs of the PROJECT to enable each jurisdiction to begin to appropriately plan for any additional responsibilities that will be necessary upon PROJECT implementation. For those Stakeholders that are considered to be in the private sector, the Concept of Operations will outline any additional projected expenses or resources required for their operation and utilization of the PROJECT elements proposed for deployment.

The overall goal of the concept of operations is to define how the system will function and/or operate throughout the system deployment stages. This also includes the incorporation of any early deployment projects associated with earlier tasks of the PROJECT.

Deliverables:

5.1.1: Draft Concept of Operations/Area Architecture Definition Report
5.1.2: Final Concept of Operations/Area Architecture Definition Report

Task 6: Alternative Analysis

Task 6.1: ATIS Analysis

In this task, the CONSULTANT shall evaluate the various types of alternative traveler information systems and recommend the most suitable for the PROJECT. This analysis will consist of a thorough evaluation of each type of system, the advantages and disadvantages of the type, a cost and benefit analysis, and an evaluation of its potential for use by travelers. The analysis shall also include a discussion of how each ATIS enhances transit service by improving access to transit-related facilities. Lastly, the analysis shall include the findings and lessons learned from the early deployment projects.

A comparison matrix shall be prepared to determine the benefits and limitations of each ATIS element or component. This analysis will address, at minimum, the following:

- Element/Component performance;
- Current and future benefits;
- Software requirements;
- Hardware requirements;
- Estimated capital cost;
- Estimated O&M life cycle costs;
- Liability and risk;
- Maturity of technology;
- Interface requirements;
- Licensing issues;
- Ownership;
- Cost;
- Expandability;
- Interoperability;
- System support capabilities;

- System maintenance needs;
- System readiness;
- Potential for use by travelers;
- Anticipated degree of use by travelers;
- Operations requirements;
- Reliability;
- Compatibility;
- Open Architecture; and
- Revenue potential.

The CONSULTANT shall include in its criteria for analysis that any required equipment shall be readily available, current, commercial off-the-shelf, and manufactured from well-established and reputable suppliers.

The development of this PROJECT component shall consider any known effective means of satisfying the functional requirements. The completed analysis should show that the recommended components are the most effective, reliable, and economical systems available.

Deliverables:

6.1.1: Draft ATIS Analysis Report
6.1.2: Final ATIS Analysis Report

Task 6.2: TIC Analysis

Based on the functional requirements and the Concept of Operations/Architecture definition, the CONSULTANT shall perform an alternative analysis, which will evaluate different sites for the TIC. A critical aspect of this task is recommending the most suitable site for the TIC. A fundamental consideration for the location of these facilities must be an estimation of the O&M needs of the TIC.

A comparison matrix shall be prepared by the CONSULTANT to determine the benefits and limitations of each proposed TIC location. This analysis shall consider, at minimum, the following:

- Optimum scenarios of the TIC to provide accessibility and coverage for the entire PROJECT area;
- Available space;
- Adherence to the functional requirements;
- Expandability;
- Communications;
- O&M;
- Staffing;
- Political issues; and
- Rent / lease cost.

In addition to the site analysis, a comparison matrix shall be prepared by the CONSULTANT to determine the benefits and limitations of each computer system (not already covered under previous tasks) to be selected under this task. This analysis will address, at minimum, the following:

- System performance;
- Estimated capital cost;
- Estimated O&M life cycle costs;
- Interface requirements;

- System support capabilities; and
- System maintenance needs.

The CONSULTANT shall include in its criteria for analysis that any required equipment shall be readily available, current, commercial off-the-shelf and manufactured from well-established and reputable suppliers.

The development of this PROJECT component shall consider any known effective means of satisfying the functional requirements. The completed analysis should show that the recommended components are the most effective, reliable, and economical systems available.

Deliverables:

6.2.1: Draft TIC Analysis Report
6.2.2: Final TIC Analysis Report

Task 6.3: Communications Alternative Analysis

Based on the user and functional requirements, the CONSULTANT shall perform an alternative analysis that will evaluate several different communication alternatives for use in the PROJECT area. It is anticipated that the selected system will be a hybrid system, consisting of a combination of numerous communication types. The selected system will likely be also based upon the requirements of the component for which communication is required or desired. These elements will be combined in the most reliable, economical, and efficient way. The CONSULTANT will review the communications systems deployed for the South Bay Traffic Forum ITS project (Part II and Part III of the South Bay Signal Synchronization and Bus Speed Improvements Plan) as the starting point for this analysis and augment as required for the PROJECT.

A comparison matrix shall be prepared to determine the benefits and limitations of each system. This analysis will address, at minimum, the following:

- Hardware requirements;
- Bandwidth requirements;
- Data transfer requirements;
- Estimated capital cost;
- Estimated O&M life cycle costs;
- Liability and risk;
- System performance;
- How well it satisfies current and future needs;
- Maturity of technology;
- Staffing and training requirements;
- Availability;
- Expandability;
- Flexibility;
- Control processes;
- Potential bottlenecks and weak links;
- Reliability; and
- Marketing potential.

The CONSULTANT shall include in its criteria for analysis that any required equipment shall be readily available, current state-of-the-art, off the-shelf, and manufactured from well-established and

reputable suppliers.

The development of this PROJECT component shall consider any known effective means of satisfying the user and functional requirements and should clearly indicate which requirements, if any, cannot be met by each system or technology evaluated. The completed analysis should show that the recommended system is the most effective, reliable, and economical system available.

Deliverables:

6.3.1: Draft Communication System Alternative Analysis Report
6.3.2: Final Communication System Alternative Analysis Report

Task 7: Conceptual Design Report

Task 7.1: Prepare Recommendations

The CONSULTANT shall prepare a comprehensive list of recommendations resulting from the Concept of Operations/Area Architecture definition and analysis work carried out in the previous tasks. The recommendations to be addressed shall be:

ATMS

Based upon the results of the ATMS Alternatives Analysis and careful consideration of the variables involved, the CONSULTANT shall prepare detailed technical recommendations for the type and locations of additional ATMS elements to be used in the PROJECT area focusing only on the areas of expansion within the PROJECT area.

Communications

Based upon the results of the Communication System Alternative Analysis and careful consideration of the variables, the CONSULTANT shall prepare a detailed technical recommendation for the best Communication System to be used in the PROJECT area. This report shall include a comprehensive discussion on why this combination of communication elements was selected, a discussion of the methodology used to make the recommendation. Additionally, this technical recommendation will also describe how the Communication System developed as part of the South Bay Traffic Forum ITS Project Part II has been modified/expanded to accommodate the PROJECT requirements.

ATIS

Based upon the results of the ATIS Analysis and careful consideration of the variables, the CONSULTANT shall prepare a detailed technical recommendation for the best ATIS to be used in the PROJECT area. The ATIS will most likely not only be a combination of different devices but also a combination of different deployment techniques (i.e., by PROJECT, South Bay Parts II and III, etc.) This report shall include a comprehensive discussion on why this option was selected and a discussion of the methodology used to make the recommendation.

TIC

Based upon the results of the TIC Analysis and careful consideration of the variables involved, the CONSULTANT shall recommend the most suitable architecture for the TIC site location and computer systems. The recommendation made by the CONSULTANT shall consider any known effective means of satisfying the functional requirements. It should be noted that once a TIC site is selected, it will be considered preliminary until after the OM&M requirements have been considered.

The CONSULTANT shall document the process which will include a comprehensive discussion on why the particular site(s) were selected and a discussion on the methodology used to make the recommendation.

Integrated Systems

The CONSULTANT shall prepare the technical recommendations for the Integration System component and its associated modules.

In addition, an executive summary report will be prepared to summarize the results of the system recommendation report.

Deliverables:

7.1.1: Draft Systems Recommendation Report
7.1.2: Final Systems Recommendation Report
7.1.3: Draft Executive Summary Report
7.1.4: Final Executive Summary Report

Task 7.2: Prepare Operations, Maintenance, and Management (OM&M) Report

The CONSULTANT will be required to develop an Operations, Maintenance, and Management (OM&M) plan for the proposed Conceptual Design of the PROJECT which provides a detailed breakdown of the total OM&M costs, including costs of the TIC and, a breakdown by jurisdiction for the incremental costs associated with the deployment of any ATIS elements to be installed as part of the proposed system conceptual design.

At a minimum, the OM&M plan must consider the required personnel skill levels and staffing costs, and the recurring and life cycle costs for capital facilities and space, equipment, material, supplies, procurement, and installation for the following:

- Recommended staffing plan (time of day, days of week) for operating and managing agency workstations and software systems;
- Traffic signal control system and system detection infrastructure maintenance;
- Maintenance of other ITS field devices;
- Periodic operating system and software version upgrades;
- Periodic computer hardware replacement;
- Hardware and software technical support and maintenance;
- Computer database maintenance;
- Computer system configuration management;
- Telecommunications infrastructure operation and maintenance;
- Map database maintenance;
- Employee training;
- Additional building maintenance, operations or communication costs to operate the agency and stakeholder work stations; and

- TIC facility costs (HVAC, building maintenance, etc.).

In addition to OM&M cost for ATIS, any added incremental ATMS costs above and beyond those already planned as part of existing Part II and Part III of the South Bay Signal Synchronization and Bus Speed Improvements Plan project will be identified and estimated in this task.

The costs shall be presented in annual terms, with total costs and breakdowns by jurisdiction, and in a clear and an easily understandable format, including graphs and charts, if necessary. The plan should be in a form that can be easily interpreted by both technical and non-technical personnel, such as city administrators and maintenance personnel. This plan shall also include a preliminary discussion on possible cost and resource sharing options, if any.

Deliverables:

7.2.1: Draft Operation, Maintenance and Management Plan Report
7.2.2: Final Operation, Maintenance and Management Plan Report

Task 7.3: Business Plan

The CONSULTANT shall develop the Business Plan which details the plan for operating, managing, and maintaining each PROJECT component for a minimum period of 10 years following system acceptance. This Business Plan shall be a "living" document that shall continually be updated as a result of the Early Deployment projects, and also adjusted to market demand, consumer needs, and commercial viability.

The Business Plan focuses on products and services that incorporate quality real-time traffic and transportation information and delivers these services through a multitude of communication channels and entertainment mediums with the vision of disseminating this information to many of the employees and travelers in the PROJECT area. The ATIS products and services to be deployed throughout the PROJECT area will incorporate the recommendations provided as part of Task 2, Early Deployment Projects. Under this task, the CONSULTANT will develop, design, and deploy prototype ATIS products/services to be evaluated for their market acceptance. A business plan will be produced for each prototype product/service which evaluates the product/service's potential to generate revenue and provides recommendations for PROJECT-wide deployment. The Business Plan for the overall PROJECT will incorporate the findings and recommendations from these individual business plans.

The Business Plan shall be segregated into four distinct sections:

1. Operations, Management and Maintenance Activities. - This section will identify OM&M activities, provide cost estimate of each activity, determine the agency responsible for each activity, identify available funding sources for each activity, and describe any required partnership agreements;
2. Financial Performance – This section will detail the various revenue generation channels, document the strategy for realizing these revenues, and discuss profit-sharing proposals, if any, among the public and private sector partners;
3. Marketing / Product Development – This section will identify the various products, potential markets, pricing, and marketing strategy; and
4. Sustainability – This section will identify the mechanisms, responsibilities, and funds for the OM&M of the PROJECT components beyond the initial ten-year deployment period.

The Business Plan shall contain an estimated Statement of Cash Flows, Balance Sheet, and Income Statement for the first, fifth, and tenth years following system acceptance of the Project in accordance with the Financial Accounting Standards Board's current Generally Accepted Accounting Principles (GAAP) outlining the sources and uses of all funds.

Deliverables:

7.3.1 Draft Business Plan
7.3.2 Final Business Plan

Task 8: Implementation

Building on the results of all previous tasks, the CONSULTANT shall work with the DPW and affected stakeholders to prepare a Strategic Implementation Plan for the PROJECT. This plan shall include a comprehensive list of tasks to be completed in each of the phases for each of the components of the PROJECT.

Each identified task must be accompanied by a brief description of the task's objective and a summary of how the CONSULTANT plans to achieve those objectives. Additionally, the description should also indicate deliverables and a list of the topics that will be addressed to successfully complete each task. The plan shall also include a comprehensive PROJECT budget, detailed enough for planning purposes, and a phased schedule of implementation for each component.

Task 8.1: Prepare Scope of Work for Next Phase

The CONSULTANT shall prepare a Scope of Work document for phases 2-4 of this PROJECT that clearly describes, by individual tasks, the extent of the work to be performed. The Scope of Work document shall be organized by phases as described in the Introduction portion of this statement of work and shall include each component of this PROJECT as a separate, stand-alone item, as appropriate. The Scope of Work must include, but not be limited to, the following items:

- A listing of tasks and subtasks to be performed by the CONSULTANT for each phase and each component of the PROJECT;

- A description of the work to be performed for each task indicating what work will be performed within the task, what work is outside the scope of this PROJECT (e.g., what software will be developed by the CONSULTANT, and what software will be purchased). This description should also indicate what level of detail will be involved in the work to be completed for each task, by indicating which aspects of each task will be addressed;

- A detailed description of the issues, topics, and parameters for each PROJECT component will be considered when making a recommendation; and

- A description of any agreements needed between the primary stakeholders in order to implement the PROJECT and provide for the operation, maintenance and management of the ATMS, ATIS, TIC, communications system, and integration system. The CONSULTANT shall draft the scope of work for these agreements, if necessary.

Deliverables:

8.1.1: Draft Scope of Work Document
8.1.2: Final Scope of Work Document

Task 8.2: Prepare Project Budget

The CONSULTANT shall prepare a project budget indicating the anticipated use of funds. This PROJECT budget shall include, but not be limited to:

- An estimated cash flow chart by quarter;
- A breakdown of expenditures by task and subtask.

Deliverables:

8.2.1: PROJECT budget
8.2.2: Cash flow chart

Task 8.3: Prepare Project Schedule

The CONSULTANT shall prepare a Project Schedule detailing the anticipated start and end dates of each task and subtask. The PROJECT Schedule shall include, but not be limited to, PROJECT milestones, schedule of deliverables, PROJECT duration, and the critical path. The PROJECT Schedule should also include appropriate agency review periods for each document and work product to provide a realistic estimation of the PROJECT's duration.

Deliverables:

8.3.1: PROJECT Schedule

Task 8.4: Prepare Strategic Plan Final Report

At the completion of Tasks 8.1 through 8.3 of the PROJECT, the CONSULTANT shall prepare a detailed, comprehensive report, including any appropriate recommendations. This report shall be accompanied by an Executive Summary.

Deliverables:

8.4.1: Draft Strategic Plan Final Report
8.4.2: Final Strategic Plan Final Report
8.4.3: Strategic Plan Final Report Executive Summary

Task 9: Additional Services

The CONSULTANT, upon receipt of each County-approved Scope of Work for Additional Services, shall proceed with such Additional Services in accordance with and within the time frames specified in such Scope of Work. Upon completion of the Additional Services, County will examine the work completed and/or test the Developed Software and identify any Deficiencies found. CONSULTANT

shall re-perform the Additional Services to County's satisfaction until the Additional Services contain no Deficiencies, in which case the Additional Services shall be deemed successfully completed.

Deliverables:

9.1: Successfully Completed Additional Services